Ilias Belharouak

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Professional Experience

- High-power lithium-ion batteries
  - Development of advanced cathode materials that can be utilized for high-power lithium-ion batteries for hybrid electric vehicle applications as well as for implantable medical devices.
- Materials preparation, characterization, and analytical techniques
  - Solid-state reaction, crystal growth, sol-gel, supercritical fluids, nano- and micro-aggregates, phosphates, borates, silicates, silver oxides, fluorides, lithium-metal transition oxides, x-ray diffraction techniques, luminescence spectroscopy, impedance spectroscopy, infrared spectroscopy, scanning electron microscopy, transmission electron microscopy, differential scanning calorimetry, thermogravimetric analysis, battery testing techniques, and cyclic voltammetry.
- Luminescent materials
  - Synthesis, characterization, and spectroscopic properties of transition and rare-earth elements in phosphate materials; use of modeling schemes.
- Materials for catalysis (fluorine chemistry)
  - Synthesis of inorganic compounds using original low-temperature routes, which involves fluorination methods and supercritical fluids techniques; open-structure materials possessing catalytic properties.

Professional Society Activities

- Member, Moroccan Association of Crystallography, Faculty of Sciences Semlalia, Cadi Ayyad University, Marrakech, Morroco
- Member, Integrated Action (Morroco/France), Faculty of Sciences Semlalia, Cadi Ayyad University, Marrakech, Morroco/Bordeaux Institute of Condensed Matter Chemistry, French National Center for Scientific Research, University of Bordeaux, Bordeaux, France
- Referee, U.S. Department of Energy Small Business Innovation Research Program

Education

- PhD (Honors), Solid-State Chemistry and Materials Science, University of Bordeaux
- MS (Honors), Solid-State Chemistry and Material Science, University of Bordeaux
- BSc, Inorganic Chemistry, Cadi Ayyad University, Marrakech, Morocco